DFC Gemini Product Profile

AMS Neve Ltd
AMS Technology Park
Billington Road
Burnley
Lancs
BB11 5UB
England
PHONE: +44 (0)1282 457011
FAX: +44 (0)1282 417282
info@ams-neve.com
www.ams-neve.com

1. Introduction

Having revolutionised film mixing with the DFC and DFC 2, AMS Neve offer a further leap forward for world-leading studios with the DFC Gemini - combining proven DFC facilities with features that again re-define the creative opportunities in film mixing.

The DFC Gemini industry-leading technology incorporates the most powerful DSP audio mixing engine featuring over 1000 audio signal paths in a single, high-resolution DFC signal processing tower. Unrivalled EQ, Filter and Dynamics ensure the DFC Gemini continues to offer the legendary AMS Neve sound, whilst the industry-proven Encore 2 automation offers compatibility between AMS Neve's portfolio of products including Neve 88RS, DMC/MMC/88D and Genesys consoles.

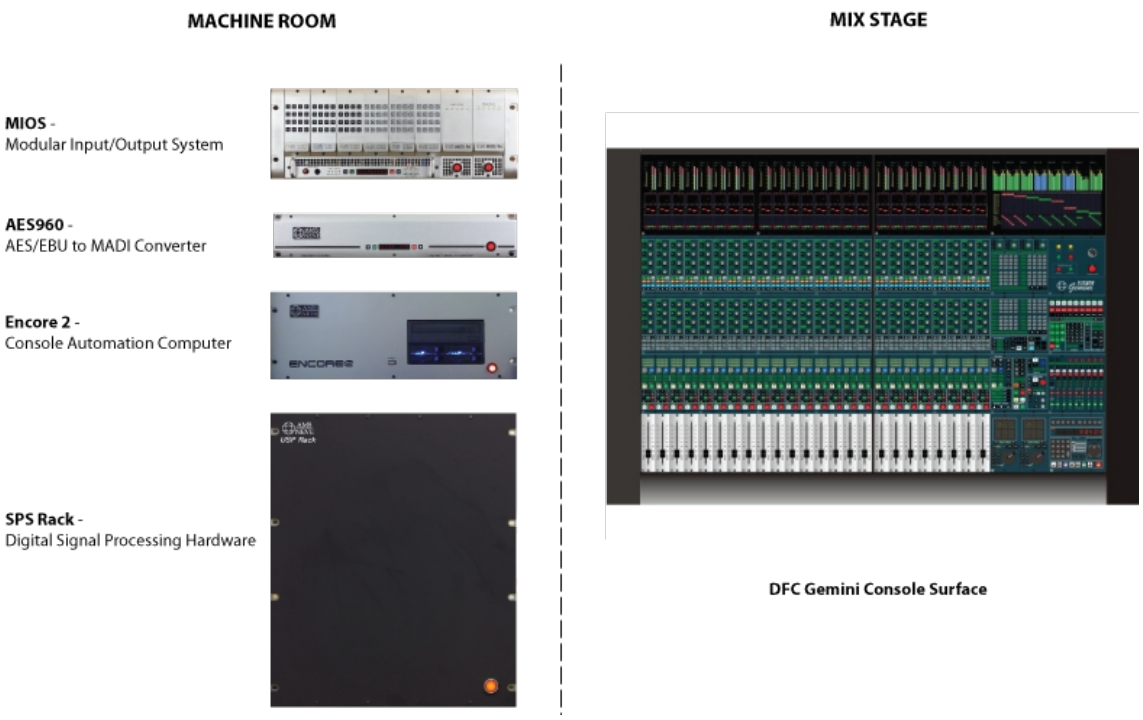
DFC Gemini can be tailored to the requirements of users in every area of mixing sound for film. It has been designed to handle the need for an increasingly large number of inputs, in "wider" surround formats (including 3D formats), within a comfortable physical layout. This goal is achieved through full dynamic automation of all controls, fully configurable DSP for processing and bussing, flexible I/O provision and an assignable control surface.

All aspects of feature film mixing are addressed:

- Multi-format surround panning, with support for >8.1 formats and new 3D standards such as Dolby Atmos and Auro 3D. When working with Dolby Atmos the DFC seamlessly generates the Objects and associated metadata. The DFC's unique ability to mix natively in formats such as 9.1 and 11.1 gives the re-recording mixer a distinct advantage in generating the Bed mix for the Dolby Atmos delivery.
- Sophisticated monitor formatting with insertion of matrix processors
- Multi-operator capability (up to three)
- Shared or discreet auxiliary and recorder busses
- Intuitive channel strip
- Clear channel parameter and status feedback minimising interrogation keypresses
- Touch sensitive automation controls
- The flexibility to fully configure the console is enhanced by the ability to create and modify multiple configurations.

2. Functional Description

DFC System Functional Components



The console consists of four parts:

- Signal Processing System (SPS) rack
- Input/Output rack(s)
- Control Surface
- Encore 2 Automation computer

The SPS Rack is at the heart of the system and houses the cards which carry the DSP chips. Users can choose how to allocate DSP resources, and save these configurations as 'Mix Setups'. Mix Setups are pre-installed in the DFC and users may modify or create a library of setups for specific applications or projects. Users allocate DSP resources by defining the number of signal paths (Channels, Auxiliaries, etc.) and the processing within them (EQ, Dynamics, etc.).

I/O Patch, a setup utility in Encore, provides a "digital patchbay" for connecting input and output signals to the internal signal paths. The paths are then assigned to strips on the console surface. No audio passes through the control surface, it simply controls the processing within the SPS rack.

2.1 Channel Path Capabilities

Any signal path can have:

- EQ, 1-8 bands, fully parametric. Hi/Lo shelf, bell and notch filter response may be selected. Each band covers the full range from 12 Hz to 20 kHz continuously with 24 dB of gain or loss.
- Filters, two band pass filters with a slope of up to 24dB per Octave in 6dB increments.
- Dynamics, in the form of Limiter, Compressor, Look-ahead Compressor, Expander, Gate. These dynamics elements can have a key input derived from any console signal path, and side-chain EQ.
- Two insert points, with analogue and/or digital interfacing.
- Access to up to 36 Auxiliary Sends. Each auxiliary can be mono or stereo.
- Delay, user-adjustable in sample steps up to a maximum of 10 seconds (hardware dependent).

It is important to appreciate that the processing within signal paths does not need to be identical in either content or order. The fully assignable processing in the DFC Gemini allows it to be put to work where it is needed and left out where it is not.

2.2 Pre-Dubs

DFC Gemini allows users to create up to 136 pre-dub inputs. Each pre-dub input can be up to 8 channels, including EQ, Filters, Dynamics and Auxes. A Pre-Dub input can be assigned to any channel strip to conserve space.

The faders, CUT and SOLO are linked to the pre-dub master and operate in concert. When the pre-dub is expanded into the user-definable Pre-Dub Zone, fader offsets can be adjusted and individual changes to EQ, dynamics, etc., can be made.

2.3 Auxiliary Sends

Each partition of the console (there can be up to three, in a multi-operator situation) can feed up to 36 mono or stereo Auxiliary sends. These can be linked across console partitions. For example Auxiliaries 1-8 can be common busses across the entire console, while Auxiliaries 9-36 could be divided discretely amongst each partition.

2.4 Bussing

DFC Gemini can provide up to 96 record busses (“tracks”) with associated tape returns. These can be configured to work in up to 12 “stems” which can have up to 16 members, allowing for complex 3D formats (e.g. 11.1, 14.1).

The flexibility provided by creating the busses in DSP means that any bus can operate as the destination for any part of a pan characteristic in a variety of surround formats. The console allows multiple surround formats to operate simultaneously.

Channels feature full surround pan capability and can be routed to any or all record busses simultaneously. “Intelligent” pan configuration automatically establishes the correct pan law for LCR or LR assignments. If a channel is sent to a single bus, or busses that have no surround designation, then panners are disabled. Individual panning controls can also be removed altogether and this allows Channels to be “double punched” to the outputs with no panning in the circuit. Channels can be panned with both conventional and 3D methods, allowing for sophisticated “height” panning operations.

Full path processing (EQ/Dynamics etc.) identical to that available to channels is available on busses and therefore stems. Busses may also be re-assigned to one another, permitting the use of “processing chains” or the reduction from one surround format to another (5.1 to 4 for example).

A stem can comprise any combination of busses. For example a 6 track dialogue recorder may be fed from twin LCR busses.

2.5 Metering

The Meter bridge may be fully or sub-fitted with LED-backlit TFT meter panels. These can have, individually, Digital Peak, VU, or PPM characteristics. There is a small dynamics meter alongside each twin movement which indicates the amount of limiting/compression and/or gating/expansion. A customisable Overload indicator is user-selected, as are colour and meter ballistics options. Graphical EQ and dynamics curve display, Pan position, and general path information (e.g. Name, Routing Destinations, Active Aux Sends) can be displayed on a path-by-path basis in the lower part of the display.

Any meter can monitor any signal path either entering or leaving the console. Track meters can meter Bus and Tape signals simultaneously side-by-side.

AMS Neve's unique WavTrack feature allows the display of the incoming audio waveform on the meter bridge when referenced to timecode, allowing at-a-glance confirmation of both console and audio status without needing to look away at a remote DAW screen. This also reduces the need to have multiple DAW monitors on top of the console.

In addition to the meter bridge itself, all input channels are fitted with a 3-colour "signal present" LED. The threshold of this indicator is user-definable.

2.6 Monitoring

The Surround Monitor Panel can be thought of as a 240 input, 16 output matrix. It allows the signals, either to or from the recorders, to be monitored in any of the available surround formats. In addition to recorder monitoring (which accounts for 96 of the matrix inputs) a further 144 channels of audio can be returned to the monitor array. These are configured as six, playback-only, machines, each 24 tracks wide. These additional monitor returns can be assigned to any individual, or multiple monitor destinations.

The DFC Gemini monitor section allows for operation at 3 calibrated levels and includes insertion points for matrix surround decoders. Cut and Solo of any speaker along with small speakers and multiple monitoring fold-down functions are provided.

Since the console has a complete digital signal path, monitor feeds are usually sent through analogue converters. However there is no restriction here and monitor feeds may also be in any of the supported digital formats.

Recorder Control

The 96 busses can be configured to feed up to 12 stem recorders. These are accessed through the PEC/Direct Panel(s), which provide:

- Bus/Tape (PEC/Direct) monitor switching
- Cut or Solo of any bus in the monitors
- Safe/Ready switching for the recorders
- Serial or Parallel hardware interfacing allows DAWs, dubbers, or multitrack ATRs to be connected, with record tallies from the machines displayed on the panel (if supported by the record device).

Similarly Bus/Tape (PEC/Direct) switching monitor logic accommodates the requirements of various types of recorder.

Both monitor and record switching can be Linked or Grouped.

2.7 Automation

The automation system for DFC Gemini is Encore 2. Encore 2 is based on existing automation software used on AMS Neve consoles, such as Flying Faders and Logic and Capricorn's integrated automation software. It provides full dynamic automation of virtually all console functions.

High quality faders and patented Logicator controls with associated alpha-numeric displays result in a "moving everything" environment. All controls are touch-sensitive and manual or auto-glide matching means that there is minimal additional work involved in producing an automated mix.

A variety of techniques are available to ease the task of scene changes; the point in a mix where numerous control settings must change instantly and precisely, these include:

- Collect Touch, which facilitates scene changes by allowing the user to easily address a range of controls and then preview and write automation in context, "on the fly".
- Safety Nets, which restrict the action of controls inside or outside a defined period of timecode. This would normally be used for restricting work to a particular scene.
- The ability to Record automation data from a "standing start" (subject to the provision of a virtual master against which all transports and the console automation may be synchronised).
- Snapshots, which contain control settings and can be applied "on the fly", automatically forcing controls into Record.
- Trimming, that is applying an offset to pre-existing dynamic moves, is available for faders only.

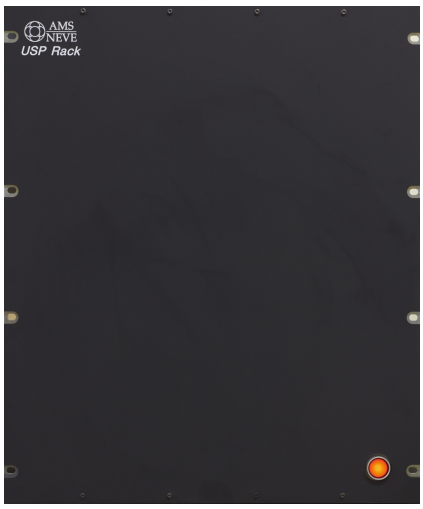
Automation modes may be selected globally but independently in each operating partition or individually for each control. The Mode keys alongside each automatable control allow selection of its status, while the integral LED in the Mode key shows the current automation status of that control. Auto and manual glide times are separately user definable.

Encore 2 can work with any of the common timecode rates (including HD rates), and can also display time in film footage. It is possible to conform automation, adding or removing sections of data, when a reel is re-cut. These actions will be referenced to the currently selected time display format. The conform can happen automatically from a Picture Change list enabling complex updates to happen without a great deal of manual effort.

During mixing, each pass can be automatically saved to the Encore 2 hard drive. At the same time a graphical "Mix Pass Tree" is produced. This can be used to backtrack through a mix or to identify selected passes. At the end of a session any or all passes may be saved in a multi-level filing system. Mix files can be exported or archived to a variety of media.

3. Hardware Description

3.1 SPS Rack



DFC Gemini is an all-digital system. Every aspect of a traditional console (equalisation, level adjust, dynamic range manipulation) is achieved by performing "calculations" on the audio, which is expressed within the system as a string of numbers. The Digital Signal Processing chips that form the core of the system operate internally with true 40-bit floating point processing, providing a nominal headroom of some 1500dB.

The Digital Signal Processing chips are not dedicated to function, the chips are given a task, based on the needs of the user, as specified within a particular Desk Setup. This approach is fundamental to the design philosophy of DFC Gemini and makes it both powerful and flexible.

The capabilities of the console in terms of how many channels of audio can be mixed down to how many outputs is a direct result of the number of processing cards fitted in the Signal Processing System rack. Since the DSPs are not dedicated to function, any signal processing function (EQ, Dynamics, etc.) or extra signal paths can be added, provided there is sufficient DSP processing left unused.

3.2 Input/Output System Rack(s)

The various components of the console are linked via MADI connections. This industry standard supports 56 or 64 channels of 24-bit audio over a single copper (or fibre) path.

Some equipment, such as AMS Neve's AudioFile, DAWs such as Avid Pro Tools (with MADI HD interface), and digital multitrack tape machines also fitted with MADI ports can be connected directly to the DFC Gemini (i.e. without any signal conversion).

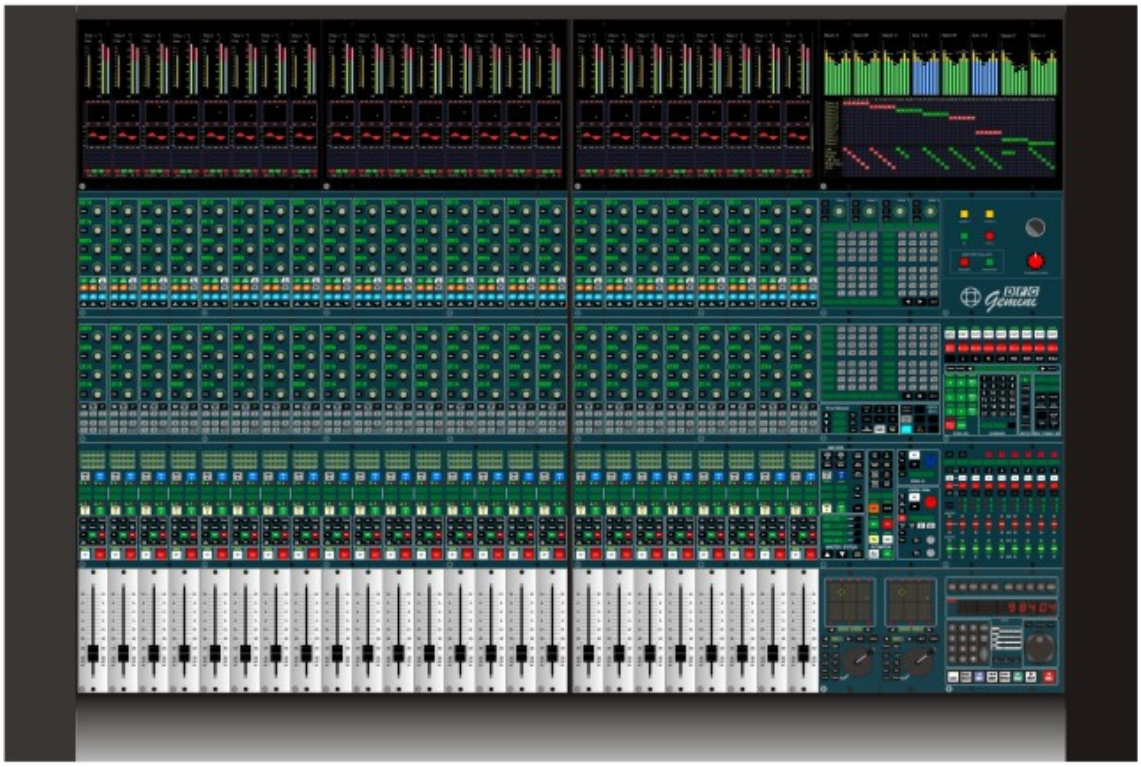
To provide the greatest degree of connectivity a selection of digital and analogue interfaces are available:

The **MIOS** (Modular Input/Output System) rack produces quality audio at 24-bit, 96kHz or 48kHz/44.1kHz resolution. The rack houses up to 6 hot-pluggable modules including:

- Mic Input Module - 4 channels each with 2 mic inputs and 1 line input.
- Line Input Module - 16 channels each with 1 line input.
- Line Output Module - 16 channels each with 1 line output.
- AES Input/Output Module - 8 AES inputs and 8 AES outputs.

The **AES960** is a Multichannel AES I/O Unit, which can support up to 56 mono inputs and 56 mono outputs at 24-bit, 96kHz or 48kHz/44.1kHz in blocks of 8. All inputs and outputs are 24-bit and have up to a 3:1 Sample Rate Conversion ratio.

3.3 Control Surface



DFC Gemini features an assignable control surface which is physically smaller than the electronic specification of the console would suggest. Assignable operation makes large consoles more manageable, by reducing both the physical size of the surface and removing the clutter that a results from a “knob-per-function” approach.

Usability is of paramount importance and AMS Neve’s wealth of experience in ergonomic design has created a console that maximises both controllability and feedback to the user.

The console has four layers allowing each fader strip to access any one of four signal paths. All signal paths are active in the mix at all times, and the user is free to select which of these appear on the surface on either a global or individual basis. This is achieved by pressing the Path access key on an individual strip or the master Path access keys at the centre section. The placement of a signal path on a channel or layer is defined by the user as a 'Desk Design'. Up to 6 sets (or 'Banks') of Desk Designs can be recalled at a touch of a button.

DFC Gemini allows up to 8 bands of EQ, 2 additional HP/LP Filters, a Limiter, Compressor, Expander, Gate and two Insert points to be placed into a channel. Up to 36 mono/stereo Auxiliary Sends are available along with bussing out to up to 96 recorder tracks. Were such a capability to be implemented in traditional form, users would find themselves standing up and down constantly to reach controls on a channel strip that is 6’ long.

The console surface can be installed (or retrofitted in place of an analogue console) with relative ease and speed. The surface has a very low power and cooling requirement compared to analogue consoles, and the compact size presents minimal sonic obstruction of the soundstage.

Assignable Logicators™

The extremes of the DFC Gemini channel strip can be reached with ease. Functions have been mapped to eight, patented Logicators. These are rotary encoders with an integral LED display. With the adjacent high visibility alpha-numeric displays, they provide more functionality than traditional potentiometers. For example, EQ values can be displayed to 1Hz accuracy.

The function of the Logicators is selected by the array of twelve keys in the middle of the Logicators. This selection can be on an individual channel basis, or globally across the console surface.

Stem Routing and Display

The channel to film stem routing keys are below the Logicators and the display beneath them shows the stem routing for the channel.

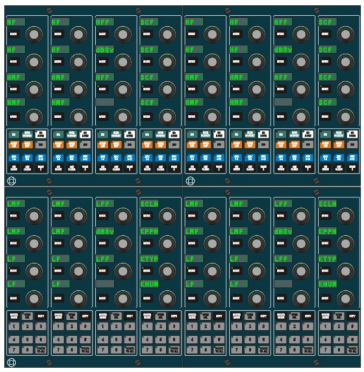
The triangular LEDs, beneath the routing display, indicate whether an input is mono, stereo, or a multi-channel (up to 8) pre-dub.

Path Selection and Automation

The PATH access keys select which of the four signal paths assigned to the strip is currently displayed and accessible on the surface. The electronic "scribble strip" provides an alpha-numeric display for each PATH key and shows the name users have given to each signal path in the console. Each PATH key also has a triangular access LED, plus a CUT indicator that allows the operator to see the cut status of all paths whether they are on or off the surface.

Control Ganging and Linking keys, alongside Path automation controls lead down the strip to Cut and Solo keys and a precision, high quality moving fader.

Pre-Dub Zone

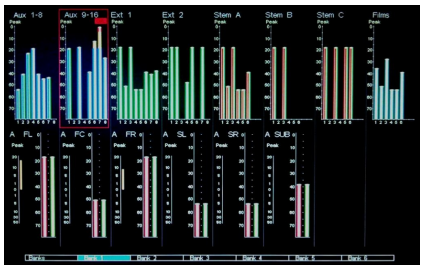


While it is possible to access individual legs of a pre-dub channel on a single strip, it is sometimes more convenient to see these signals side-by-side. For this purpose an area of the console surface is designated the Pre-Dub Zone. This is a region in which pre-dub channels may be spread out (or expanded) to permit viewing and adjustment of multiple parameters within a pre-dub.

The Pre-Dub Zone is also used by the virtual Assignable Facilities Unit (AFU).

An assignable surface is necessary to make a very large console manageable but there will be occasions when users need to see and adjust all the controls for one signal path. This is when AFU mode is activated. AFU mode allows a larger set of controls for an individual channel to be displayed and manipulated simultaneously. Any signal path can be displayed by the virtual AFU and the status of all controls for different paths can be viewed in quick succession.

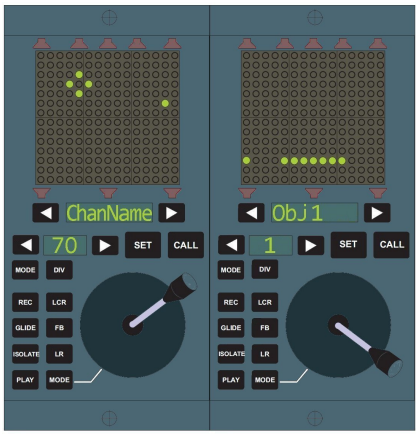
Master Meter Bridge



The console master meter bridge features variable-ballistic twin virtual-bargraph LED-backlit TFT meter panels, addressable by any signal path within the console. These can have, individually, Digital Peak, VU, or PPM characteristics.

As well as individual paths, Pre-Dub inputs, Stems and the overall output of the Monitor Formatter can also be assigned. Up to eight pre-set configurations can be created and rapidly recalled at will at any time during a mix. In a multi-operator situation it is possible for one user to meter paths resident in another partition. The meters are configured using the Meter Designer screen within Encore 2.

Joystick Panners



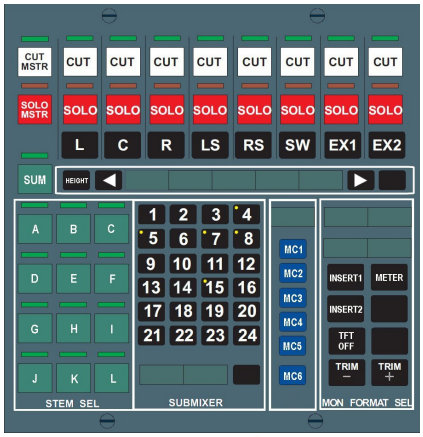
Every channel is equipped with full surround panning, provided by four Logicators: LCR, Divergence, Front-Back, Rear LR. The joysticks take over panning from the Logicators for creating dynamic moves easily and intuitively.

The twin assignable joysticks in the master section can be "attached" to any signal path on the console. Nudge keys allow the selection of signal paths in sequence. Alternatively, pressing the SET key on a joystick module causes the lower matrix panel to display all available console channels numerically. Pressing the required channel number brings that channel under the control of the joystick.

After a move has been recorded by the automation the channel will play back the same move, even if the joystick is no longer accessing it.

An LED matrix above each joystick shows the "pan position" as a moving diamond during playback. The stick position is shown as a single dot.

Surround Monitoring Panel

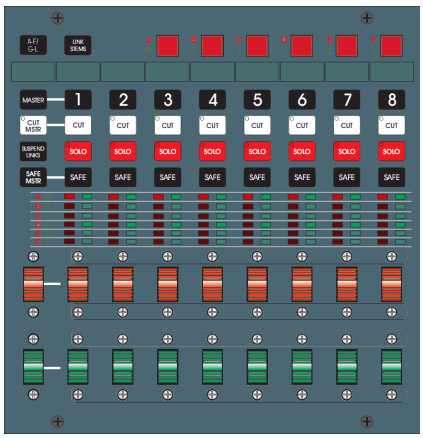


The Surround Monitor panel is used to select which of the twelve stems (A to L) is being monitored. Different monitor formats can be saved, named and instantly recalled, providing the ability to test the surround mix for various surround environments.

There are six sets of external inputs, which can have up to 24 inputs each, that can be routed directly to the surround monitor speakers.

The panel is used in conjunction with the PEC/Direct panel to select which parts of the stems are monitored on which speakers.

PEC/Direct Panel



The PEC/Direct panels are used to configure up to twelve film stems (A to L), each of which can be up to eight tracks (busses) wide. An indicator matrix shows the status of bus, tape and record enable tallies for all twelve stems. Multiple panels can be fitted, or a single panel can alternate between stems A-F and G-L.

It is used in conjunction with the Surround Monitoring Panel for fully configurable routing of the tracks to the surround monitoring speakers.

A safe mechanism is provided for recorder control so that it can be locked into safe and will not respond to any accidental commands (e.g. if REC enable is unintentionally enabled it will not go into record).

Individual Bus/Tape switching is provided for all the tracks that have been setup in the film stems.

The user can also assign paddles 1-6 to control the master REC and master Bus/Tape for each stem (A-L).

Master Section

This houses controls for Path swapping, on a layer by layer basis, master automation controls for the associated partition and calibrated monitor settings. The twin numeric Matrix panels perform a variety of functions, including:

Selection of Meter Designs
Path process re-assignment
Central Bussing
Joystick Panner assignment
Line-up tone routing
Expanded Access path selection
Selection of Banks

3.4 Encore 2 Automation Computer

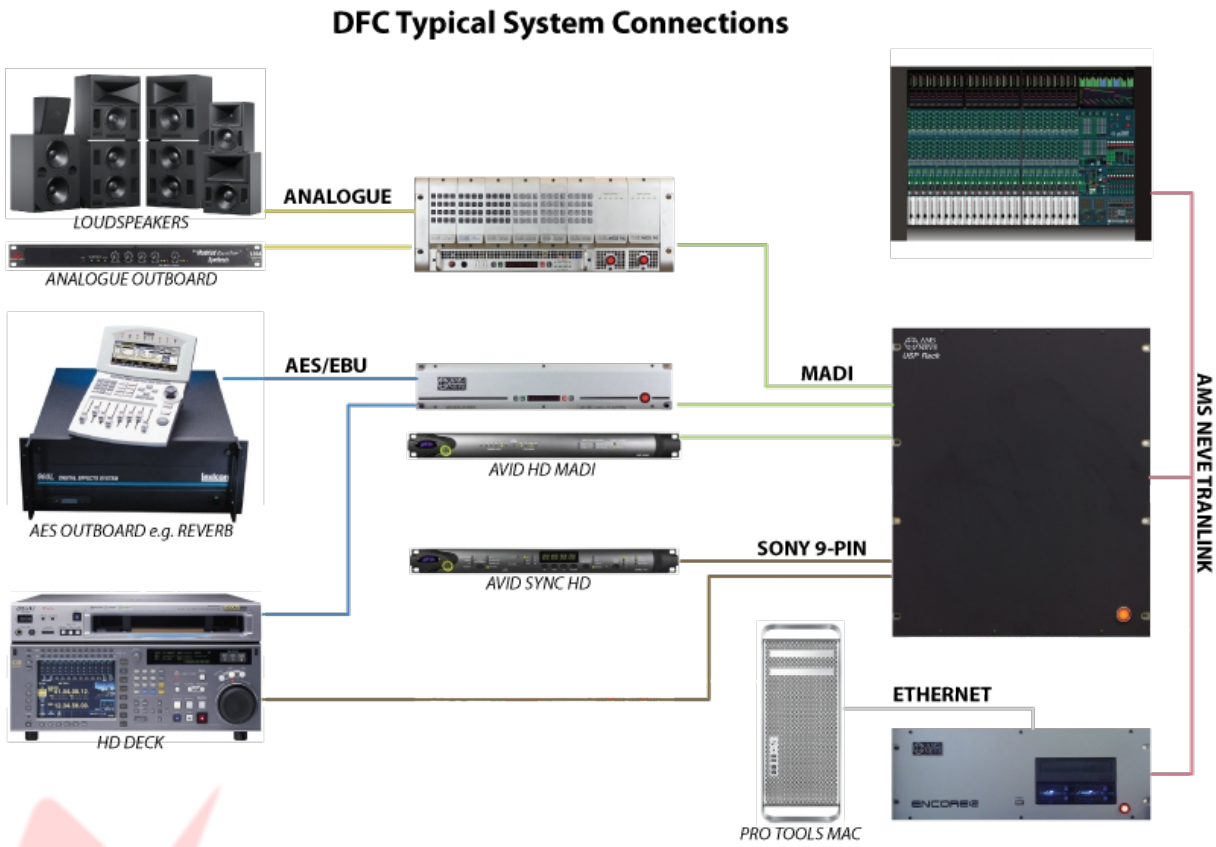
Within DFC Gemini there are multiple transputers (parallel processors), an approach which allows the size of the console to expand without compromising speed of operation. In direct communication with the transputers is an Intel i7 PC running Windows 7. This acts both as host for the automation system and provides a user-friendly, graphical interface for configuring the console.

3.5 Optional MCS Module

The DFC Gemini's Machine Control System option provides a comprehensive solution for the management of a wide variety of machine transports, direct from a dedicated control panel, which can be fitted anywhere on the console surface.

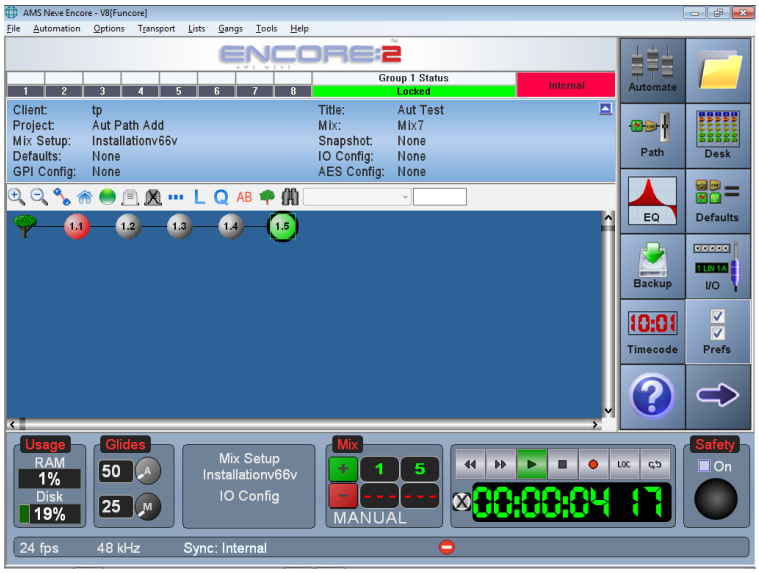
The Machine Control System enables the synchronisation of up to 8 independent transports. Any combination of machines may be configured as a group, allowing the user to rapidly switch multiple transports 'on-' and 'off-line'. Machine types are displayed automatically, enabling machines to be identified easily even when large numbers of transports are connected. Any machine can be designated as master, and slaves can be offset either while parked or 'on the fly' during playback. Six serially-controlled machines can be connected directly via Sony protocol using six RS-422 ports (5 x 9 pin, 1 x 15 pin).

Recorder track-arming can be controlled and monitored via the PEC/Direct Panel. Eight pairs of industry-standard paddle switches provide controls for tape/bus (PEC/Direct) comparison and track arming of individual stem tracks. A further pair of master paddles enables the control of multiple tracks within a single stem or even across multiple stems. The system's flexible relay outputs and opto-isolated tally inputs may be configured to interface to a wide range of parallel-controlled recorders including DAWs, film dubbers, and multitrack tape recorders.



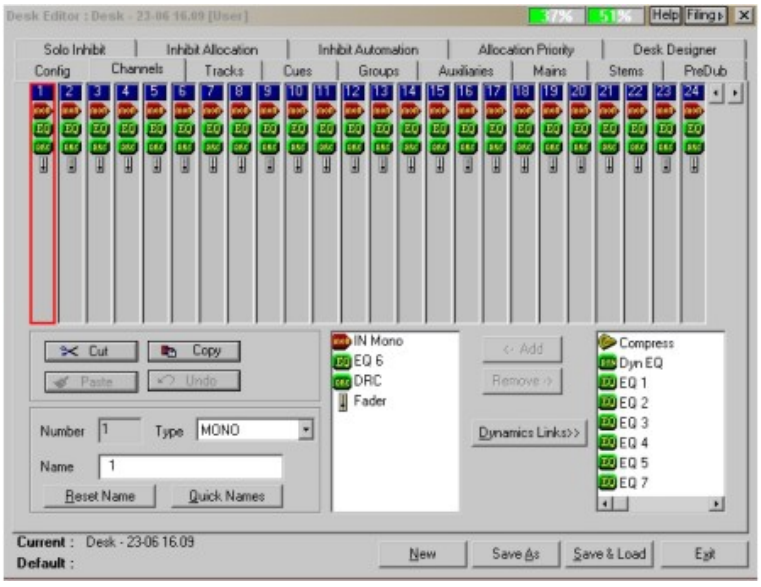
4. Day-to-Day Operation

4.1 Introduction



In addition to the conventional console surface, the Encore 2 automation computer is used extensively during setup and for recording and modifying automation data. In some cases, such as I/O patching or adding a processing element to a path, either the screen and mouse or the console controls may be used.

4.2 Flexible and Scalable Architecture



As previously described a DFC Gemini consists of five functional elements: The SPS rack, the I/O racks, the console surface, MCS and the Encore 2 automation system. The console surface, the processing and I/O are scalable - where increasing is usually a simple matter of adding additional cards which are detected on boot-up.

Unlike other consoles, the utilisation of these resources can be user-defined. The DFC Gemini has configurations 'pre-installed' and ready to mix, but should the user want to customise any of the following aspects and store them in a library of templates, they can use the powerful 'Desk Editor' application to modify:

- The number of input channels, and EQ, Dynamics etc. usage
- The number of output and auxiliary busses, again including EQ, Dynamics etc.
- The Input and Output interfaces that are attached to these signal paths
- The routing of channels to outputs
- The setting of every control, in every signal path
- The placement of the signal paths on the console surface
- Monitor formatting
- Meter assignment

A 'User Defaults' file also caters for individual operator preferences with regard to default control values, display brightness and glide times.

4.3 Dynamic Automation

As the most widely used automation system on large format post-production consoles, Encore 2 boasts a comprehensive feature set.

The simplicity of operation is achieved through:

- Touch Sensitive Controls (including Rotary Controls)
- Automation Mode indicator for all channel controls
- Clear feedback of all the controls parameters during automation moves
- Each partition (mixer position) can have independent automation master controls
- Common automation system within the AMS Neve family of products

The prime method of interaction with automation is through the console surface. All controls are touch-sensitive and can be transitioned from playing back data to recording new information transparently, as part of the regular mixing process.

A variety of automation modes exist. The user can choose to lock certain controls in Play, making inadvertent adjustment impossible. When controls are Record-enabled, touching them will transition from Play to Record. The only decision that a user must make prior to Recording new data is what should happen when the control is released. Options include: immediate glide back to the previous pass value, remain in Record until glide is initiated, use AutoTakeover to "auto null" controls when they are moved past the previous play pass position, or Record the new value to the end of the mix.

5. Performance Specifications

Figures give the acceptable limits for each measurement. Typical results will be better than these figures.

All measurements made with an output signal of -1 dB below clipping (where applicable) and a headroom setting of 26dB. Noise measurements made with a 20Hz to 22kHz bandwidth. Distortion measurements are made with a bandwidth of 22kHz for 48k sampling and 40kHz for 96k sampling.

5.1 Mic Input Module (AM4624)

Mic Inputs 60 dB gain with 150Ohm source impedance.

Frequency Response	+0.1/-0.4dB @ 20Hz, +0.1/-0.2dB @20kHz, +0.1/-0.5dB @ 40kHz (96k sampling only)
Input Impedance	>2kOhm
EIN	>-126dB
THD+Noise	< 0.008% 20Hz to 1kHz, rising to < 0.03% @ 15kHz
Crosstalk	< -90dB 20Hz to 1kHz, rising to < -80dB @ 20kHz (measurement is three hostile channels to one quiet)
CMRR	> 70dB 20Hz to 1kHz, rising to > 60dB @ 20kHz
Maximum Input	Set with headroom jumpers (26dB headroom only maintained for gains of 6dB to 75dB)

Line Inputs 0dB gain with 50Ohm source impedance.

Frequency Response	+0.1/-0.2dB 20Hz to 20kHz, +0.1/-0.5dB @ 40kHz
Input Impedance	>20kOhm
EIN	>-108dB
THD+Noise	< 0.003% 20Hz to 1kHz, rising to 0.03% @ 15kHz
Crosstalk	< -90dB 20Hz to 20kHz (measurement is three hostile channels to one quiet)
CMRR	> 70dB 20Hz to 20kHz
Maximum Input	26dBu (set with headroom jumpers)

5.2 Line Input Module (AM4662)

Line inputs 0dB gain with 50 Ohm source impedance.

Frequency Response	+0.1/-0.2dB 20Hz to 20kHz, +0.1/-0.3dB @ 40kHz
Input Impedance	>20kOhm
Dynamic Range	>110dB
THD+Noise	<0.003 20Hz to 1kHz, rising to 0.006% @ 15kHz
Crosstalk	< -84dB 20Hz to 20kHz (measurement is 15 hostile channels, one quiet)
CMRR	> 70dB 20Hz to 20kHz
Maximum Input	26dBu (set with headroom jumpers)

5.3 Line Output Module (AM4663)

Line outputs 0dB gain into 100kOhm load impedance.

Frequency Response	+0.1/-0.3dB 20Hz to 20kHz, +0.1/-0.8dB @ 40kHz
Output Impedance	50 Ohm
Dynamic Range	>110dB
THD+Noise	< 0.005% 20Hz to 1kHz, rising to 0.008% @ 15kHz
Crosstalk	< -90dB 20Hz to 20kHz (measurement is 15 hostile channels, one quiet)
Maximum Output	26dBu (set with headroom jumpers)

*© ® **2010-2012 AMS Neve Ltd** own the copyright of all information and figures contained in this document which are not to be copied or reproduced by any means or disclosed in part or whole to any third party without written permission.*
As part of our policy of continual product improvement, we reserve the right to alter specifications without notice but with due regard to all current legislation.
***Disclaimer**: The information in this manual has been carefully checked and is believed to be accurate at the time of publication. However, no responsibility is taken by AMS Neve for inaccuracies, errors or omissions nor any liability assumed for any loss or damage resulting either directly or indirectly from use of the information contained within. We have provided links to certain other World Wide Web sites solely for your convenience, and AMS Neve Ltd is not responsible for the content of any other sites. It is up to you to take precautions to ensure that whatever you select for your use is free of such items as viruses, worms, Trojan horses and other items of a destructive nature. In no event will AMS Neve Ltd. be liable to any party for any direct or indirect use of this document or on any other linked website.*
***Trademarks**: All trademarks are the property of their respective owners and are hereby acknowledged.*